

Claims

1. Process for producing a laminate (16), comprising
5 at least one polymer film with information and at least one substrate, for further processing for forgery-proof documents,
 - in which a film (24), comprising at least one
10 polymer film (17) with supporting films (23) arranged at least on both sides, is fed to a first processing station (31), and, in the first processing station (31), at least one supporting
15 film (23) is delaminated on a first side of the polymer film (17), after which at least one substrate (18) is laminated on by an adhesive and subsequently exposed to a crosslinking-active UV radiation, and
 - in which a laminate (44) led out from the first
20 processing station (31) is fed to a second processing station (51), and at least one supporting film (23) is delaminated on a second side of the laminate (44), after which at least one substrate (19) is laminated on by an adhesive and subsequently exposed to a crosslinking-active
25 UV radiation.
2. Process for producing a laminate (16), comprising
30 at least one polymer film with information and at least one substrate, for further processing for forgery-proof documents,
 - in which a film (24), comprising at least one
polymer film (17) with supporting films (23)
35 arranged at least on both sides, is fed to a first processing station (31'), and, in the first processing station (31'), at least one supporting film (23) is delaminated on each side of the polymer film (17), and
 - in which the polymer film (17) led out from the
first processing station (31') is fed to a second

processing station (51'), and at least one substrate (18, 19) is laminated on by an adhesive on each side of the polymer film (17) and subsequently exposed to a crosslinking-active UV radiation.

5

3. Process according to Claim 1 or 2, characterized in that the laminate (16) is led out from the second processing station (51, 51') and wound up on a supply roll (66) or is fed to a downstream processing station.

10

4. Process according to one of the preceding claims, characterized in that a film (24), comprising a polymer film (17) with information and supporting films (23) arranged on both sides, is drawn off from at least one supply roll (22) or from a prior processing device and is fed to a first processing station (31, 31').

15

20

5. Process according to Claim 1, characterized in that the first and second processing stations (31, 51) have a roller (38, 58), on the circumference of which there are positioned in each case at least one delaminating device (32, 52), at least one laminating device (34, 54) and at least one curing device (41, 61).

25

6. Process according to Claim 5, characterized in that the roller (38, 58) of the first and second processing stations (31, 51) is wrapped around by the laminate (44) and the laminate (16) by at least 180°, preferably 270°.

30

35 7. Process according to Claim 1, characterized in that the adhesive between the first substrate (18) and the polymer film (17) is cured by the curing device (41) at least before reaching the second processing station (51).

8. Process according to one of the preceding claims, characterized in that a polyethylene film is used as the substrate (18, 19).
- 5 9. Process according to one of the preceding claims, characterized in that the substrate (18, 19) is subjected to a corona treatment.
- 10 10. Process according to one of the preceding claims, characterized in that a photo-polymer film, which is at least partially exposed and preferably provided with holograms, is used as the polymer film (17).
- 15 11. Process according to one of the preceding claims, characterized in that a first and a second supply roll (22, 22') is used, and arranged downstream of the supply rolls (22, 22') is a splicing device (27), by which, after one supply roll (22; 22') has been used up, the film (24) of the further supply roll (22, 22') is joined with a butt joint for continuous processing.
- 20 12. Process according to one of the preceding claims, characterized in that a storage device (28), from which film is taken while the supply rolls (22, 22') are being changed over, is provided between the supply roll (22, 22') and the first processing station (31).
- 25 30 13. Apparatus for producing a laminate (16), comprising at least one polymer film (17) with information and at least one substrate, for further processing for forgery-proof documents, in particular for carrying out the process according to one of Claims 1 to 12, characterized in that a film (24), comprising at least one polymer film and supporting films (23) arranged at least on both sides, can be fed to a
- 35

first processing station (31), in that the first processing station (31) has at least one delaminating device (32) for a first supporting film (23) of the film (24), at least one laminating device (34) for at least a first substrate (18) and at least one curing device (41), and in that a laminate (44) formed by the first processing station (31) can be fed to at least a second processing station (52), which has at least one delaminating device (52) for the further supporting film (23), at least one laminating device (34) for at least a second substrate (19) and at least one curing device (61).

14. Apparatus for producing a laminate (16), comprising at least one polymer film (17) with information and at least one substrate, for further processing for forgery-proof documents, in particular for carrying out the process according to one of Claims 1 to 12, characterized in that a film (24), comprising at least one polymer film (17) and supporting films (23) arranged at least on both sides, can be fed to a first processing station (31'), in that the first processing station (31') has a first and a second delaminating device (32, 52) for the supporting film (23) of the laminate (24), and in that a further processing station (51'), with a first and second laminating device (34, 54) for at least a first and second substrate (18, 19) and at least one curing device (41), is provided.

15. Apparatus according to Claim 13 or 14, characterized in that arranged upstream of the first processing station (31, 31') is at least one supply roll (22) for delivering the film (24) and arranged downstream of the last processing station is at least one winding-up roll (66) for storing the laminate (16).

16. Apparatus according to one of Claims 13 to 15,
characterized in that at least two supply rolls
(22, 22') are provided and a splicing device (27)
is arranged between the supply rolls (22, 22') and
5 a first processing station (31, 31').
17. Apparatus according to Claim 16, characterized in
that a storage device (28) is arranged downstream
of the splicing device (27).
- 10 18. Apparatus according to one of Claims 13 to 17,
characterized in that at least one web edge control
feeds the laminate (16) to a cutting mechanism (71)
by means of a guide line created by exposure.
- 15 19. Apparatus according to one of Claims 13 to 18,
characterized in that, in a cutting mechanism (71),
the laminate is cut to a precise web width and the
information carriers can be positioned at a defined
20 distance from the edge of the web by means of a
guide line.
20. Apparatus according to one of Claims 13 to 19,
characterized in that at least two winding-up rolls
25 (66), which can be changed over on the run, are
provided for continuous winding up.
21. Apparatus according to Claim 13, characterized in
that the angle of wrap of a roller (38, 58) of the
30 first and second processing stations (31, 51) is
adjustable by the arrangement of guide rollers (42,
62).
22. Apparatus according to Claim 13, characterized in
35 that the rollers (38, 58) of the first and second
processing stations (31, 51) are driven jointly.
23. Apparatus according to Claim 13, characterized in
that the roller (38) of the first processing

- 20 -

station (31) is driven in pulling operation and the roller (58) of the second processing station (51) is driven in pushing operation.

- 5 24. Apparatus according to Claim 13, characterized in that the directions of rotation of the rollers (38, 58) of the first and second processing stations (31, 51) are opposing.